the kidney threshold had not been low, so that the blood sugar response was not concerned with the glycosuria.

CONCLUSION. A case of glycosuria with apparently lowered renal threshold for glucose is reported.

There was evidence of abnormal carbohydrate metabolism.

True diabetes was probably not present.

THE GRAHAM-STEELL MURMUR IN MITRAL STENOSIS.

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IN a number of cases of mitral stenosis there is heard at the left of the sternum in the region of the pulmonic valves, about the third intercostal space, a soft blowing diastolic murmur (Graham-Steell murmur). This has been ascribed to insufficiency of the pulmonic valves, due to dilatation of the pulmonic ring. Cabot[1] found this murmur in 22 out of 50 cases coming to autopsy, but on postmortem examination no recognizable lesion of the aortic or pulmonic valves was observed and no dilatation of the pulmonary artery. Thayer, on the other hand, in the discussion following the reading of Cabot's paper, states that when there was an opportunity of examining the heart after death he found in all cases with the Graham-Steell murmur marked dilatation of the right ventricle, with dilatation of the pulmonic ring.

The question which has interested us in a study of a rather large number of cases of mitral stenosis is in what proportion of cases this so-called Graham-Steell murmur is heard and what are its characteristics, so that there may be little difficulty in recognizing it. The Cardiovascular Board at Camp Jackson, consisting of four regularly appointed well-trained men and four men of exceptionable ability loaned for this work by Major Arthur E. Davis, of the 156th Depot Brigade, were instructed to refer to me all cases of mitral stenosis as well as all individuals of the draft who showed a snappy first sound at the apex, and all those who had a diastolic murmur, no matter where it was located, for detailed study. It was due to their painstaking care and hearty coöperation that a series of 36 cases of mitral stenosis were studied. These cases were definitely mitral stenosis and not aortic insufficiency, with a Flint murmur, although the differentiation may be at times difficult. This question will be made the subject of a subsequent communication.

Of the 36 cases, 24 were pure mitral stenosis, *i. e.*, with no insufficiency, and 12 were associated with a definite systolic murmur of an insufficiency. In the 36 cases a diastolic murmur along the left border of the sternum was heard 12 times, or in 33.3 per cent. of the

[1] Tr. Assn. Am. Phys., 1914, xxix, p. 22.

cases. In the 24 cases of pure stenosis it was heard 9 times, or 37.5 per cent., and in the 12 cases of stenosis with insufficiency it was heard 3 times, or 33.3 per cent. It would seem, therefore, that it is heard rather more frequently in the pure cases than in those associated with insufficiency.

The Graham-Steell murmur is a diastolic murmur heard at the left border of the sternum in some cases of mitral stenosis. It is especially well heard in the third left intercostal space. It may be described as a soft blowing diastolic murmur, which replaces the second sound at the pulmonic area. It may be heard when standing, but frequently it is missed entirely in the erect posture, and is brought out particularly well when the patient lies on his back. Occasionally, on the other hand, it is heard only when the patient stands. It is affected by respiration, and there is no definiteness in this. In some cases it is heard at the end of complete inspiration, in other cases at the end of expiration and again in the mid-period of quiet breathing. Exercise may intensify the murmur, and the patient should be examined following some effort. In some cases exerting pressure with the stethoscope will enable one to recognize the murmur. The duration of the murmur is variable—it may occupy the whole of diastole or only a part thereof. There is very little if any transmission.

Thayer has found hypertrophy of the right ventricle in his autopsied cases, but in our series, where there were no signs of decompensation, the right border, relying only on percussion, in no case extended farther than 3 cm. from the midsternal line. The reason for this discrepancy in findings is obvious. The response to exercise in mitral stenosis, as pointed out in another paper, is about equal between good and poor, and in cases with the Graham-Steell murmur we found 7 with good response and 5 with poor response to the effort of hopping on one foot 100 times.

The frequency with which a history of hemoptysis is given in mitral stenosis suggested the possibility that hemoptysis might be associated with the Graham-Steell murmur and might be the result of anatomical conditions producing the murmur. It was complained of 4 times, in 6 cases no history was obtained and in 2 cases the history was so uncertain that we prefer to classify these as indefinite. Comparing this with the cases with no Graham-Steell (24), we find that hemoptysis occurred 4 times, in 14 cases there was no history of hemoptysis and in 6 an indefinite history. Expressing the above in percentage:

In 36 cases of stenosis hemoptysis occurred 8 times, or 22.2 per cent.

Graham-Steell (12 cases).				No Graham-Steell (24 cases).			
Hemoptysis	4	times or 33.3	per cent.	Hemoptysis	4	times or 16.6	per cent.
Absent	6	" or 50.0	"	Absent	14	" or 58.3	"
Indefinite	2	" or 16.6	"	Indefinite	6	" or 25.0	"
		99.9	"			99.9	"

These numbers are rather small to permit of definite conclusions, but it is apparent that in our cases of mitral stenosis hemoptysis, when it occurred, was found more frequently when a Graham-Steell murmur was present.

The interest attached to the Graham-Steell murmur lies in the fact that it makes the differential diagnosis between aortic insufficiency with a Flint murmur and a mitral stenosis with a Graham-Steell murmur a matter of some difficulty. In searching for the murmur it is recommended that the patient be examined in various positions, in various phases of respiration and before and after exercise.

ON THE USE OF A BINOCULAR LOUPE FOR THE EXAMINATION OF THE FUNCTIONAL TROUBLES OF THE PUPIL.

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It is a well-known fact that the iris is influenced by the different organs of the body, and particularly by the nervous system. The Swiss physiologist, Maurice Schiff (Geneva), therefore, rightly considers the iris as the esthesiometer of the human body. The examination of the functional troubles of the pupil are consequently of greatest importance not only for the ophthalmologist and neurologist, but also for medical science in general. Therefore the greatest interest has been shown toward experimental methods regarding functional troubles of the pupil. Such is the case particularly in respect to the reaction of the pupil to impressions of light.

Thirty years ago medical men examined this function by means of lighted matches, held before the eye of the patient; others used candlelight for this purpose or observed whether the darkening of the eye, caused by the hand being held before the eye and then withdrawn, influenced the size of the pupil. In present times the light-reaction of the pupil is tested by means of an electric pocket lamp. There is, however, still needful a more perfect method for observation of the functional trouble of the pupil. In the well-known manual on the relationship between ophthalmology and general medical science, Schmidt-Rimpler has already pointed out the utility of the binocular microscope for that purpose. In those times, however, the binocular microscope was a very expensive and unhandy instrument, for which reason it was not adaptable nor generally used by medical science. During the year 1899, Prof. J. Lippmann,[1] of the Academy of Science in Paris, demonstrated a very much simpler binocular loupe, and this has been recorded in the *Précis*

[1] Compt. rend. de l'Acad. des Sciences de Paris, November 23, 1899.